EX PARTE OR LATE FILED

DOCKET FILE COPY ORIGINAL

January 25, 1994

C T I A
Cellular
Telecommunications
Industry Association
1133 21st Street, NW
Third Floor
Washington, DC 20036
202-785-0081 Telephone
202-785-0721 Fax

Building The
Wireless Future

Mr. William F. Caton
Acting Secretary
Federal Communications Commission
1919 M Street, N.W. Room 222
Washington, D.C. 20554

Re: Ex Parte
Docket No. 93-252 (Regulatory Parity)

Dear Mr. Caton:

On Tuesday, January 25, 1994, the Cellular Telecommunications Industry Association ("CTIA") sent the attached letters and documents to the FCC staff listed below.

Andrew Barrett	John Cimko
Ervin S. Duggan	Reed Hundt
William Kennard	James Quello
Gerald Vaughan	Greg Vogt

If there are any questions in this regard, please contact the undersigned.

Sincerely,

Robert F. Roche

Enclosure

Competition Materials on the Record

Stanley M. Besen, Robert J. Larner, and Jane Murdoch, *The Cellular Service Industry: Performance and Competition*, November 1992 (filed by CTIA)

CTIA, *The ABCs of Cellular Competition*, 1993 (filed by CTIA)

Testimony of Jerry A. Hausman before North Carolina Utilities Commission in Docket No. P-100, SBU 114, on Exempting Domestic Public Cellular Radio Telecommunications Service Providers from Regulation, 1991 (filed by Bell Atlantic)

Peter W. Huber, Michael K. Kellogg and John Thorne, *The Geodesic Network II: 1993 Report on Competition in the Telephone Industry*, 1993 (filed by CTIA)

Peter W. Huber, *Report of the Bell COmpanies On Competition in Wireless Telecommunications Services*, 1991 (filed by CTIA)

Drs. Charles Jackson and John Haring, *Errors in Hazlett's Analysis of Cellular Rents*, September 1993 (filed by CTIA)

PSC of Maryland, Division of Rate Research and Economics, *A Report on Cellular Telephone Service in Maryland*, September 1990 (filed by Bell Atlantic)

North Carolina Utilities Commission, *Order Exempting Domestic Public Cellular Radio Telecommunications Service Providers from Regulation*, Docket No. P-100, SBU 114, February 14, 1992 (filed by Bell Atlantic)

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Building The Wireless Future

Thomas E. Wheeler
President/CEO

January 25, 1994

William Kennard
General Counsel
Federal Communications Commission
1919 M Street, N.W. Room 614
Washington, D.C. 2055

Re: Ex Parte
Docket No. 93-252 (Regulatory Parity)

Dear Mr. Kennard:

The Cellular Telecommunications Industry Association ("CTIA") herewith provides copies of three documents referenced in its pleadings filed in the above-captioned proceeding.

The documents include the study, prepared by Economic and Management Consultants International (EMCI) entitled *The Changing Wireless Marketplace*, December 17, 1992; the Cellular Brief entitled *Cellular: Building for the Wireless Future*, March 26, 1993; and the Affidavit of Jerry A. Hausman, United States v. W. Elec. Co., Inc., Civil Action No. 82-0192 (D.D.C. July 29, 1992).

These documents, in concert with the material already placed in the record in this proceeding, which are listed on the attached index, support the conclusion that the cellular industry is indeed competitive, and meets the statutory requirements for a determination that forbearance from regulation is appropriate as specified by the provisions of the Omnibus Budget Reconciliation Act of 1993.

Very Truly Yours,

Thomas E. Wheeler

Attachments

January 25, 1994

C T I A Cellular Telecommunications Industry Association
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Building The Wireless Future

Thomas E. Wheeler
President/CEO

Commissioner Andrew C. Barrett
Federal Communications Commission
1919 M Street, N.W. Room 826
Washington, D.C. 20554

Re: Ex Parte
Docket No. 93-252 (Regulatory Parity)

Dear Andy:

The Cellular Telecommunications Industry Association ("CTIA") herewith provides copies of three documents referenced in its pleadings filed in the above-captioned proceeding.

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Thomas E. Wheeler

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January 25, 1994

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Building The Wireless Future

Thomas E. Wheeler
President/CEO

Commissioner James H. Quello
Federal Communications Commission
1919 M Street, N.W. Room 802
Washington, D.C. 20554

Re: Ex Parte
Docket No. 93-252 (Regulatory Parity)

Dear Jim:

The Cellular Telecommunications Industry Association ("CTIA") herewith provides copies of three documents referenced in its pleadings filed in the above-captioned proceeding.

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Thomas E. Wheeler

Attachments

January 25, 1994

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Building The Wireless Future

Thomas E. Wheeler
President/CEO

Greg Vogt
Chief, Tariff Division
Federal Communications Commission
1919 M Street, N.W. Room 518
Washington, D.C. 2055

Re: Ex Parte
Docket No. 93-252 (Regulatory Parity)

Dear Greg:

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Very Truly Yours,

Thomas E. Wheeler

Attachments

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Building The Wireless Future

Thomas E. Wheeler
President/CEO

January 25, 1994

Gerald Vaughn
Deputy Bureau Chief, Operations
Federal Communications Commission
1919 M Street, N.W. Room 500
Washington, D.C. 20554

Re: Ex Parte
Docket No. 93-252 (Regulatory Parity)

Dear Gerry:

The Cellular Telecommunications Industry Association ("CTIA") herewith provides copies of three documents referenced in its pleadings filed in the above-captioned proceeding.

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Thomas E. Wheeler

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Building The Wireless Future

Thomas E. Wheeler
President/CEO

John Cimko
Chief, Mobile Services Division
Federal Communications Commission
1919 M Street, N.W. Room 644
Washington, D.C. 20554

Re: Ex Parte
Docket No. 93-252 (Regulatory Parity)

Dear John:

The Cellular Telecommunications Industry Association ("CTIA") herewith provides copies of three documents referenced in its pleadings filed in the above-captioned proceeding.

The documents include the study, prepared by Economic and Management Consultants International (EMCI) entitled *The Changing Wireless Marketplace*, December 17, 1992; the Cellular Brief entitled *Cellular: Building for the Wireless Future*, March 26, 1993; and the Affidavit of Jerry A. Hausman, United States v. W. Elec. Co., Inc., Civil Action No. 82-0192 (D.D.C. July 29, 1992).

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Building The Wireless Future.

Thomas E. Wheeler
President/CEO

Chairman Reed Hundt
Federal Communications Commission
1919 M Street, N.W. Room 814
Washington, D.C. 20554

Re: Ex Parte
Docket No. 93-252 (Regulatory Parity)

Dear Mr. Chairman:

The Cellular Telecommunications Industry Association ("CTIA") herewith provides copies of three documents referenced in its pleadings filed in the above-captioned proceeding.

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Thomas E. Wheeler

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January 25, 1994

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1133 21st Street, NW
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Building The Wireless Future

Thomas E. Wheeler
President/CEO

Commissioner Ervin S. Duggan
Federal Communications Commission
1919 M Street, N.W. Room 832
Washington, D.C. 20554

Re: Ex Parte
Docket No. 93-252 (Regulatory Parity)

Dear Ervin:

The Cellular Telecommunications Industry Association ("CTIA") herewith provides copies of three documents referenced in its pleadings filed in the above-captioned proceeding.

The documents include the study, prepared by Economic and Management Consultants International (EMCI) entitled *The Changing Wireless Marketplace*, December 17, 1992; the Cellular Brief entitled *Cellular: Building for the Wireless Future*, March 26, 1993; and the Affidavit of Jerry A. Hausman, United States v. W. Elec. Co., Inc., Civil Action No. 82-0192 (D.D.C. July 29, 1992).

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North Carolina Utilities Commission, *Order Exempting Domestic Public Cellular Radio Telecommunications Service Providers from Regulation*, Docket No. P-100, SBU 114, February 14, 1992 (filed by Bell Atlantic)

UNITED STATES DISTRICT COURT FOR

DISTRICT OF COLUMBIA

UNITED STATES OF AMERICA, Plaintiff, vs. WESTERN ELECTRIC COMPANY, INC., AND AMERICAN TELEPHONE AND TELEGRAPH COMPANY, Defendants.	)	Civil Action No. 82-0192
CITY OF WASHINGTON DISTRICT OF COLUMBIA	) ss.	

AFFIDAVIT OF JERRY A. HAUSMAN

JERRY A HAUSMAN, being duly sworn, deposes and says:

1. My name is Jerry A. Hausman. I am MacDonald Professor of Economics at the Massachusetts Institute of Technology in Cambridge, Massachusetts, 02139.

2. I received an A.B. degree from Brown University and a B.Phil. and D. Phil. (Ph.D.) in Economics from Oxford University where I was a Marshall Scholar. My academic and research specialties are econometrics, the use of statistical models and techniques on economic data, and microeconomics, the study of consumer behavior and the behavior of firms. I teach a course in "Competition in Telecommunications" to graduate students in economics and business at MIT each year. Mobile telecommunications is one of the primary topics covered in the course. I was a member of the editorial board of the Rand (formerly the Bell) Journal of Economics for the past 13 years. The Rand Journal is the leading economics journal of applied microeconomics and

regulation. In December 1985, I received the John Bates Clark Award of the American Economic Association for the most "significant contributions to economics" by an economist under forty years of age. I have received numerous other academic and economic society awards.

3. I have done significant amounts of research in the telecommunications industry. My first experience in this area was in 1969 when I studied the Alaskan telephone system for the Army Corps of Engineers. Since that time, I have studied the demand for local measured service, the demand for intrastate toll service, consumer demands for new types of telecommunications technologies, marginal costs of local service, costs and benefits of different types of local services, including the effect of higher access fees on consumer welfare, demand and prices in the cellular telephone industry, and consumer demands for new types of pricing options for long distance service. I have also studied the effect of new entry on competition in paging markets, telecommunications equipment markets, and interexchange markets. Lastly, I have edited a recent book, Future Competition in Telecommunications (Harvard Business School Press, 1989).

4. I have been involved in consent decree waiver requests of Pacific Telesis and the other RBOCs, including the 1985 waiver for the purchase of Communications Industries by Pacific. In 1987 I submitted affidavits to the District Court on behalf of Pacific Telesis in the first Triennial Review of the consent decree and for NYNEX with respect to a waiver for international long distance service. In 1990-91 I submitted affidavits on behalf of all of the RBOCs in the Remand on Information Services.

5. I have provided testimony regarding cellular telephone previously to both federal and state regulators. I submitted affidavits to the FCC with respect to competition in the cellular industry in 1988 and 1989. I have participated in investigations and regulatory hearings in California that

involved paging and cellular telephone in 1985-86 (both), 1988 (paging), 1989 (cellular), and 1991 (cellular). I have also testified before other state regulatory commissions regarding the proper scope of regulation of cellular telephone service. In 1989 I submitted testimony to the U.K. government (Department of Trade and Industry) regarding likely future developments of proposed Personal Communications Networks (PCNs).

I. SUMMARY AND CONCLUSION

6. Current restrictions on BOC provision of wireless services increase BOC costs and customer prices, decrease innovation, and decrease competition in cellular and paging markets. Removal of the restrictions will increase competition in wireless markets.

7. Landline interexchange toll markets are separate markets from wireless markets. Competition between landline and cellular now, and for the foreseeable future, will be limited by price differences and by limited cellular capacity. Thus, removal of restrictions on BOC provision of interLATA radio-based services will not permit BOCs to exercise any market power in landline interexchange toll markets.

8. BOC cellular and paging companies have neither the incentive nor the ability either to predate or to discriminate against their rivals. There exists no substantial possibility, not even any credible likelihood that granting of the waiver would affect competition adversely in cellular, paging, or interexchange toll markets.

II. TECHNOLOGY OF PAGING AND CELLULAR

A. Paging

9. Three types of paging are commonly used: display (alphanumeric), tone, and voice. The technology of paging is such that economies of scale are exhausted at levels of output that are much smaller than the entire market. Indeed, the technology of paging has typically led to many competitors offering different paging services on assigned frequencies. The paging operation will consist of a number of transmitters to cover a geographical area, where the number of transmitters depends on the topography and the type of paging services offered. The number of customers served on a given frequency will vary between approximately 1,000 and 100,000 depending on the paging services offered and the fraction of customers who choose each type of service.[1] Voice paging allows for the fewest customers, with tone-only (beeper) allowing for the most. Display paging allows for an intermediate number of customers.

10. Paging has none of the features that can create a natural monopoly. A market with a single output is a natural monopoly when average cost decreases as output increases over any possible range of demand, and service can be provided at minimum cost when a single firm produces all of the output. In paging we observe numerous firms offering service in a given geographic market.

11. Paging has been deregulated or is unregulated in approximately 1/2 of the states including New York, Oregon, Washington, Illinois, Florida,

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[1] The 1,000 capacity arises when a frequency is used for tone-voice only. Tone and display paging have capacities of 70,000 on a single frequency. See R.H. Tridgell, "Why RPC1 (POCSAG) is the International Standard", Mobile Radio Technology, May 1988, pp. 37-38. Tone and display paging account for the vast majority of paging customers as voice paging has decreased in importance. Display paging has a 81% share, tone has a 11% share, and tone-voice has a 7% share (EMCI/Telocator, The State of the U.S. Paging Industry: 1991).

Missouri, Arizona, and Texas.[2] No movements toward consolidation around only a single paging provider have taken place in these states. I would expect such consolidation if natural monopoly conditions prevailed. The opposite has occurred with substantial new entry and intense competition. Thus, both technology and market experience demonstrate that paging markets are not natural monopolies. Furthermore, in the states which do regulate paging, no state uses either rate of return or price regulation.[3] Thus, state regulatory commissions do not regulate prices of paging companies, instead letting competition do its job.

B. Cellular Telephone

12. Cellular likewise has none of the features of a natural monopoly. As with paging, the technology of cellular is such that economies of scale are exhausted at levels of output that are much smaller than the total demand in a market. As demand grows, capacity is increased by "splitting cells," which leads to either constant or increasing marginal (incremental) cost. In all cellular markets of any reasonable size, I expect to see two economically viable facilities providers, as allowed by the FCC. Certainly, market experience to date demonstrates that no natural monopoly characteristics exist in the cellular industry. The Block B (wireline) carriers had a substantial "headstart" in most large cellular markets.[4] However, after the Block A (non-wireline) cellular carriers began operation, they encountered no difficulties in providing competitively priced service and in competing successfully. Indeed, in many MSAs, the Block A carriers have caught up to

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[2] These figures are from a 1986 NARUC report. It is interesting to note that many of these states have recently deregulated paging.

[3] Regulation generally consists of a requirement to file informational tariffs.

[4] The "wireline" carrier frequency in cellular markets is referred to as the Block B frequency while the non-wireline frequency is referred to as the Block A frequency. The wireline/non-wireline distinction arose in the procedure used by the FCC to award the cellular franchises.

and even surpassed the Block B carriers in the number of customers served.[5]

13. While cellular markets are typically analyzed at the MSA (Metropolitan Statistical Area) and RSA (Rural Service Area) level, which corresponds to FCC licenses to cellular providers, it is important to realize that cellular users make significant use of their cellular telephone outside of their local MSA or RSA. "Roaming", which corresponds to use of a cellular telephone outside of a user's home MSA or RSA, accounted for over 10% of overall cellular service revenues in 1991 and is rapidly growing.

14. Overall, 28 states, and the District of Columbia, do not regulate the price of cellular service.[6] Maryland continued deregulation of cellular after a recent study investigating current competitive conditions in that state. North Carolina also recently deregulated cellular after a Commission proceeding which investigated competitive conditions. No state applies either rate of return regulation or price caps to cellular.[7] Thus, no profit

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[5] The FCC resale policy for the Block A carriers during the headstart period allowed for rapid conversion of customers from the Block B carrier to the Block A carrier, along with the fact that costs of switching from Block B to Block A were extremely low. AT&T's claim that RBOCs dominate the cellular markets they serve (p. 74) is inconsistent with market statistics which I am aware of. Block A carriers have a significant share of cellular customers across all cellular markets. AT&T's further claim that only the RBOCs are earning substantial profits from cellular (pp. 77-78) ignores the significant stock market value that McCaw has or the over 2 billion dollars which McCaw paid for LIN. Rapid expansion in cellular by McCaw has not led to current profits because of continuing investments, but the market valuation of McCaw certainly indicates the expectation of significant future profits. Furthermore, McCaw's revenue growth has exceeded the revenue growth of RBOC cellular companies over the past three years.

[6] This information is obtained from the CTIA June 1991 Regulatory Update and the deregulation of cellular in North Carolina in February 1992.

[7] Thus, McCaw's argument that interconnection charges are a matter of indifference to RBOCs because either the cellular subsidiary or the local exchange company receives the revenue is incorrect since most states continue to use some form of rate of return regulation on the RBOC LEC but not on the RBOC cellular company. ("Comments of McCaw Cellular Communications", p. 6) McCaw repeats this mistake when it claims that RBOC cellular carriers have an incentive to retard the development of the cellular industry because of their landline services. (p. 13) Thus, McCaw attributes a lack of economic rationality to the RBOCs in choosing between unregulated and regulated profit opportunities.

limitation is applied to cellular providers so that no theory of "monopoly leveraging" or cross subsidy to evade regulation can apply here. If they regulate cellular at all, state regulators allow cellular companies wide discretion in setting prices, discounts, and service options. For the most part, regulators allow the combination of the underlying technology and competition to determine prices for cellular customers. Thus, even states that continue to regulate cellular have recognized that competitive conditions eliminate the need for traditional types of rate-base rate of return regulation applied to local telephone companies.

III. COMPETITIVE CONDITIONS IN PAGING AND CELLULAR

A. Paging

15. No barriers to entry exist in paging. Competition among paging providers is extremely strong. Until 1981 the FCC authorized only 8 paging frequencies in each geographical area and capacity limitations sometimes existed in densely populated urban areas.[8] Since 1981, however, the FCC has increased the available paging frequencies from 8 to 96. Furthermore, the FCC has relaxed its standards to permit expanded paging use of the 44 channels allocated principally for two-way common carrier communications. The FCC also permits FM broadcast stations to offer common or private carrier paging on a nonaudible subcarrier basis; this technology can provide 10 to 25 additional frequencies in a given geographical area.[9] Thus, the capacity limitation in

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[8] See "Report of the Bell Companies on Competition in Wireless Telecommunications Services, 1991" (Report), pp. 2-8 for a further discussion of FCC policies toward paging. I have used empirical information compiled in the Report throughout my affidavit. The Report contains information of the type which I often use in my research, and the information is accurate and consistent with my knowledge of the paging and cellular industries. I attempt to remain current on these industries since I cover them each year in my graduate course at MIT and analyze them in my consulting activities.

[9] The FM subcarrier channels are currently in use to allow for expanded geographic coverage for paging. See Report, pp. 94-95.

paging no longer exists.[10]

16. The 96 frequencies exclusively available for public paging create a total capacity of 3-4 million customers under typical fully loaded conditions in a given geographical area. For this amount of capacity to be a binding constraint, market penetration in, say, the Los Angeles metropolitan areas would have to reach approximately 50-75%. Yet the current market penetration level in Los Angeles is about 2.5-4%. Even if paging demand continues its rapid growth less than 1/3 of the available capacity will have been used by the year 2000.[11]

17. Capital costs do not create a barrier to entry in paging. The estimated capital costs to establish a wide area paging system vary from $180,000-230,000 depending on frequency. A potential entrant would have no difficulty raising capital of this magnitude, especially if the entrant had a successful track record in previous business ventures. Barriers to exit are not large enough to create competitive problems. While some costs, such as transmitter towers, are largely sunk costs, most of the costs are not sunk. The largest cost, the cost for the paging units themselves, can be in part recouped upon exit because the pagers can be used in other geographical locations on the same frequency. Likewise, much of the electronic transmission equipment can also be resold if exit occurs.

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[10] Furthermore, the FCC has kept a one megahertz reserve for paging (930-931 MHz). When this frequency band becomes available for licensing, another 40 paging channels will come into use.

[11] These estimates are based on capacity from the current technology for paging. By the year 2000, it is quite likely that capacity will expand markedly due to advances in technology.

18. Significant new entry has occurred in paging markets in the past five years.[12] Despite some consolidation throughout the industry during the 1980's, new entry has continued. Given current and expected future market growth of about 10-25% per year, I expect that new entry will continue to occur.[13] Over the period 1980 to 1991 the number of paging subscribers increased from about 1 million to over 10 million subscribers. The exercise of market power, with prices above competitive levels, cannot occur in a growing market with no barriers to entry. New competitors will always have the economic incentive to cut prices to competitive levels to gain market share.

19. In 1988 I conducted an empirical study of paging prices in a number of states. I found that in the period 1985-88, the prices for paging service had decreased overall by 5% per year. The average service prices for display paging, the fastest growing type of paging with about 70% of all users, had decreased the most. Furthermore, I found little or no difference between prices in the deregulated and regulated states. Thus, competicion works well in paging markets. Price regulation is not required for paging markets to operate competitively.

B. Cellular

20. Regulatory barriers to entry do exist for cellular because the FCC licenses two cellular carriers in each MSA (Metropolitan Statistical Area) and RSA (Rural Service Area). The FCC-established duopoly in wholesale service rules out a market structure of many small, individually insignificant, competitors (i.e. perfect competition). But cellular markets have behaved in a competitive manner, as both the FCC and state regulators have found upon

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[12] Approximately 1,000 paging services are currently in operation. Some paging markets have as many as 50 paging carriers. ("Comments of Telocator", p. 4)

[13] Telocator reports a current growth rate of 22% per year. ("Comments of Telocator", p. 4)

investigation.[14] The number of cellular subscribers grew at an average rate of about 50% per year from its start in 1984 to 6.4 million subscribers as of June 1991.

1. Empirical Data on Competition in Cellular

21. In 1991 I conducted an econometric study based on data collected from the 30 largest cellular markets in the U.S. In the study I consider the minimum monthly bill based on 1991 average industry usage (160 minutes/month with 80% peak usage) across all the cellular carriers. The results of the study are given in Appendix A. As explanatory variables in the regression specification I use the MSA population, average income, average commuting distance, an indicator variable for a Block A carrier, and an indicator variable for whether the state regulates cellular prices. My results indicate that price regulation does not lead to lower cellular prices, and indeed, the econometric estimates are that prices are about 5-16% higher in states that regulate cellular prices.[15] Regulation, in other words, does not lead to lower prices in these markets. If anything, cellular prices determined by market forces are lower. This result demonstrates that competitive forces are operating in cellular markets.

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[14] See e.g. FCC, Notice of Proposed Rulemaking, CC Docket No. 91-34, where the FCC tentatively concluded that the cellular service market is competitive, March 24, 1991, pghs. 13-14; California Public Utilities Commission, D90-06-025, June 6, 1990, Conclusion 20, p. 105; Connecticut Department of Public Utility Control, 90-08-03, Sept. 25, 1991, Findings 3 and 9, pp. 11-12, North Carolina Utilities Commission, p-100, SIB 114, February 14, 1992, Finding 2, pp. 6-8. In its most recent decision, CC Docket No. 91-34, May 14, 1992, the FCC found that while cellular may not be "fully competitive" and pointed to the duopoly market structure as a reason, the FCC also found that cellular carriers are competing on the basis of service offerings and service price, among other factors. (pgh. 11) The FCC also found that no evidence exists that cellular carriers have attempted to engage in anticompetitive conduct (pgh. 12) or that anticompetitive conduct is occurring (fn. 20)

[15] The results are given in Appendix A. This comparison holds the other economic factors, e.g. population, constant so that the effect of regulation can be considered by itself. A similar study which I conducted in 1989 led to very similar results. By price regulation here I mean states which require advance notice tariff filings for change in cellular prices. As explained elsewhere in this affidavit, no states regulate cellular based on profit regulation or rate of return regulation.

22. I have also studied two other market situations where concerns about competition might be raised. First, I have analyzed situations where both cellular carriers are either partly or wholly owned by an RBOC, e.g. Atlanta where Pacific Telesis owns part of the Block A carrier while BellSouth owns the Block B carrier. The results are given in Appendices B and C. I find slightly lower prices, an average of $81.31, when both cellular companies are owned partly or wholly by an RBOC compared to the situation where the Block A carrier is owned by a non-RBOC cellular carrier, an average of $84.41, e.g. Philadelphia where the Block A carrier is owned by Comcast, LIN, and McCaw while the Block B carrier is owned by Bell Atlantic. Thus, the claim that the RBOCs are not competing with each other where they provide cellular service head-to-head is incorrect.[16] Second, I have analyzed locales where GTE operates a cellular carrier, e.g. Tampa. My understanding is that GTE's cellular subsidiary is not required to provide equal access or presubscription for long distance by the terms of its Consent Decree. Furthermore, a survey of GTE cellular companies done under my direction indicated that none are currently offering an equal access option for long distance. The results of my analysis are contained in Appendix C. Again, I find no support for the proposition that any lack of competition in these areas has adversely affected prices. Thus, the absence of equal access has not created competitive problems.[17] Nor did the lack of equal access enable GTE to favor its former long distance interexchange corporate affiliate, U.S. Sprint. Indeed, GTE recently sold its remaining share of U.S Sprint and has exited the interexchange toll industry.

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[16] ALC has claimed that collusion exists among the RBOCs through Bellcore and through joint ownership of cellular franchises, ("Opposition of ALC", pp. 2-3). These results contradict both ALC's claim and Sprint's unsubstantiated claim that "the price for cellular service is within the RBOCs' exclusive control." (Opposition of Sprint, p. 28)

[17] Indeed, to the best of my knowledge no non-BOC cellular company offers its customers a presubscription option for long distance calls. Thus, presubscription is not an attractive competitive option for cellular carriers to offer.

23. A high degree of competition between cellular carriers has been observed along two dimensions--quality and price.[18] First, quality competition among cellular carriers has been extremely high. Techniques to reduce interference and decrease the number of blocked or dropped calls have been developed. These techniques have occurred from advances in engineering such as sectorization, overlay/underlay cell sites, cell enhancers, downtilted antennae, and dynamic cell power controllers. Cell-size reduction technologies are currently being developed and deployed. The number of cell sites has also increased significantly. This rapid technological advance along with the introduction of numerous new services, e.g. personalized traffic routing, demonstrate the competitive character of the cellular industry.

24. A primary form of price competition among carriers to date has been competition to sign up new customers. This form of competition is as one would expect in a rapidly growing industry such as cellular telephone, e.g. cellular subscribers grew by more than 33% in 1991. Competition between cellular service providers has led to equipment discounts to customers of amounts between $100-$450 when new customers initiate cellular service.[19] New customers have also been offered significant amounts of free air time. Note that the equipment discounts are an important source of price competition. A discount of say $350 is equivalent to a reduction in the

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[18] This analysis is consistent with the FCC's recent finding that cellular carriers compete on the basis of "market share, technology, service offerings, and service price." (CC Docket No. 91-34, May 14, 1992, pgh. 11)

[19] See Report, pp. 157-159. Cellular resellers have repeatedly complained about these discounts to the FCC and to state regulatory commissions. However, the discounts, or "bundling" of cellular equipment and cellular service, are pro-competitive because they lead to lower prices to consumers. At the same time, cellular customers can buy cellular service without any obligation to buy cellular equipment from a given cellular carrier (no price discrimination) so that neither equipment prices nor cellular service price are raised above competitive levels. The FCC has recently decided to permit bundling. (CC Docket No. 91-34, May 14, 1992) Both the DOJ and the Bureau of Economics of the FTC have concluded that bundling in the cellular industry is pro-competitive.

monthly cellular access fee of about $10 per month over a 3 year period which is the amount of time that an average cellular customer continues service.[20] Given that the average monthly cellular access fee in large MSAs is about $30, this price competition has led to a price discount of about 33%.

A second form of price competition has been the introduction of numerous pricing plans for cellular service. Cellular carriers have offered new pricing plans with discounts for higher amounts of usage, plans for low usage customers, plans for usage outside the central business districts, and plans for usage by occasional callers who depend on cellular mainly for safety reasons. These pricing plans have led to decreased effective prices for cellular customers since customers can choose the plan which lead to a lower monthly bill for their pattern of usage. Overall, the price of cellular service has decreased among cellular providers when these pricing plans are taken into account.[21] At the same time, cellular users have been receiving higher quality products since most cellular carriers were increasing the scope of their geographic coverage during this period. Overall, when the discounts and pricing plans are accounted for, the real (inflation adjusted by the CPI) price of cellular usage has decreased about 10-12% per year over the past five years.

2. AT&T's Claims of Lack of Competition

25. AT&T's main claim about a lack of competition among cellular carriers refers repeatedly to the situation as a "shared monopoly".[22] The

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[20] This 3 year calculation is based on "churn" statistics from 1991 reported by the CTIA. It is also consistent with churn figures in the California PUC investigation of the cellular industry, I. 88-11-040.

[21] Indeed, even opponents of this motion state that prices of cellular are decreasing while technology is improving and new service offerings are being offered to customers, see e.g. "Comments of Association for Local Telecommunications Services", p. 10. All of these economic factors demonstrate the presence of competition in the duopoly cellular markets. ALC also reports that the average customer bill for cellular decreased by almost 25% between 1985 and 1988, "ALC Opposition to Motion of the Bell Operating Companies", p. 6)

[22] See e.g. pp. 37, 38, 56. MCI makes the same claim (p. 6) based on the same report by a Wall Street analyst employed by the First Boston Co. It is of some interest that in the same report, the Wall Street analyst

claim makes no economic sense. First, shares in each MSA have changed markedly over the years. The non-wireline carriers, despite their 12-18 month delay behind the wireline carriers in beginning service, have caught up with and in a number of MSAs passed the wireline carrier in market share. Changing market shares are a sign of strong competition (as AT&T has argued to the FCC and state regulators numerous times). Second, previous econometric analysis that I have done demonstrates that monopoly conditions do not exist. Almost every elementary economics textbook demonstrates that a monopolist will always increase price so that the price elasticity exceeds one.[23] Yet my econometric analysis has found the price elasticity in cellular markets to be far below one--more in the range of 0.3-0.4 Other studies have found a similar result, e.g. the 1988 study by Booz, Allen. Thus, the salient characteristic of a monopoly--prices high enough to cause the price elasticity to be above one--are certainly absent in cellular markets. Furthermore, as discussed above, no state regulatory commission has engaged in traditional regulation of cellular prices.

26. AT&T makes another mistake in its claims about the BOCs' cellular companies' likely actions if the waiver is granted. The BOCs claim that they will be able to offer lower priced interLATA service since they will be able to buy interLATA service in bulk, but AT&T claims that BOC cellular customers

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characterizes the current cellular situation as a "period of high capital intensity and low profitability" (p. 29) which is hardly the outcome expected in a "shared monopoly". AT&T's only serious attempt at economic analysis is the claim that "value of service" pricing cannot exist in a competitive market and can exist only with "actual or tacit collusion". (p. 38) This claim is incorrect. "Value of service" pricing (i.e. price discrimination) often exists in competitive markets, see e.g. S. Borenstein, "Price Discrimination in Free Entry Markets", Rand Journal of Economics, 16, 1985. Only in perfect competition will price discrimination never occur. An elementary textbook discussion is given in D.W. Carlton and J.M. Perloff, Modern Industrial Organization, (Scott, Foresman, Glenview, IL, 1990, ch. 14). Carlton and Perloff give examples of price discrimination in magazines, movie theater discounts to senior citizens, grocery coupons, and health clubs. Presumably, AT&T does not seriously claim that "actual or tacit collusion" is present in these situations where price discrimination is present.

[23] I will use the absolute value of the price elasticity in the discussion which follows.